Please amend claim 3 as follows:

E3 3. (Twice Amended) The substrate as claimed in claim 2, wherein said substrate is chemically modified.

Please amend claim 4 as follows:

Sub(2) 4. (Twice Amended) The substrate as claimed in claim 3, wherein said substrate has a polar radical at a terminal on the surface of the substrate.

Please amend claim 5 as follows:

5. (Twice Amended) The substrate as claimed in claim 4, wherein said polar radical is hydroxyl radical, carboxyl radical, epoxy radical or amino radical.

Please amend claim 6 as follows:

E4 6. (Amended) The substrate as claimed in claim 5, wherein said polar radical is a carboxyl radical and said carboxyl radical is connected on a surface of said substrate through ester linkage.

Please amend claim 7 as follows:

7. (Amended) The substrate as claimed in claim 5, wherein said polar radical is a carboxyl radical and said carboxyl radical is connected on a surface of said substrate through amide linkage.

Please amend claim 8 as follows:

8. (Amended) The substrate as claimed in claim 5, wherein said polar radical is a carboxyl radical and said carboxyl radical is introduced to a surface of said substrate with a silane coupling agent, a titanium coupling agent or an aluminum coupling agent.

Please amend claim 9 as follows:

9. (Amended) The substrate as claimed in claim 5, wherein said polar radical is an epoxy radical and said epoxy radical is introduced to a surface of said substrate with a silane coupling agent, a titanium coupling agent or an aluminum coupling agent.

Please amend claim 10 as follows:

10. (Amended) The substrate as claimed in claim 5, wherein said polar radical is an amino radical and said amino radical is introduced to a surface of said substrate with a silane coupling agent, a titanium coupling agent or an aluminum coupling agent.

Please amend claim 11 as follows:

11. (Amended) A chip for immobilizing DNA as claimed in claim 1, wherein DNA is immobilized to said substrate.

Please amend claim 12 as follows:

12. (Twice Amended) A method for amplifying DNA for a substrate or chip, comprising the following steps:

(a) chemically modifying the substrate or chip to provide a polar radical selected from the group consisting of hydroxyl radical, carboxyl radical, epoxy radical, amino radical, sulfuric radical, cyano radical, nitro radical, and thio radical on the surface of the substrate or chip;

(b) cleaning the chemically modified substrate or chip with Tris-EDTA buffer solution;

(c) dipping the chemically modified and cleaned substrate or chip into a solution containing a primer of amplifying target DNA, four kinds of nucleotides and DNA polymerase;

(d) holding the temperature of said solution at 95°C for about 1.5 minutes;

(e) holding the temperature of said solution at 45°C for about a minute;

(f) holding the temperature of said solution at 74°C for about 2 minutes; and

(g) repeating steps (d)-(f).

Please amend claim 14 as follows:

14. (Twice Amended) The substrate having DNA immobilized thereon as claimed in claim 13, wherein said

substrate has a polar radical at a terminal on the surface of the substrate.

Please amend claim 15 as follows:

15. (Twice Amended) The substrate having DNA immobilized thereon as claimed in claim 14, wherein said polar radical is hydroxyl radical, carboxyl radical, epoxy radical or amino radical.

Please amend claim 16 as follows:

16. (Amended) A chip for amplifying and immobilizing DNA.

Please amend claim 22 as follows:

22. (Amended) The substrate having DNA immobilized thereon as claimed in claim 15, wherein said polar radical is a carboxyl radical and said carboxyl radical is connected on a surface of said substrate through an ester linkage.

Please amend claim 23 as follows:

23. (Amended) The substrate having DNA immobilized thereon as claimed in claim 15, wherein said polar radical is a carboxyl radical and said carboxyl radical is connected on a surface of said substrate through an amide linkage.

Please amend claim 24 as follows:

24. (Amended) The substrate having DNA immobilized thereon as claimed in claim 15, wherein said polar radical is a carboxyl radical and said carboxyl radical is connected to a surface of said substrate with a silane coupling agent, a titanium coupling agent or an aluminum coupling agent.

Please amend claim 25 as follows:

25. (Amended) The substrate having DNA immobilized thereon as claimed in claim 15, wherein said polar radical is an epoxy radical or an amino radical and said epoxy radical or said amino radical is connected to a surface of said substrate with a silane coupling agent, a titanium coupling agent or an aluminum coupling agent.

Cancel claim 21 without prejudice or disclaimer and enter the following new claims:

26. (New) A method for immobilizing and amplifying DNA on the surface of a substrate or chip comprising the following steps:

a. chemically modifying the substrate or chip by binding a chloride radical to the surface of the substrate or chip;

b. chemically modifying the substrate or chip having a chloride radical at its terminal by replacing the chloride

radical with a hydroxyl radical on the surface of the substrate or chip;

c. chemically modifying the substrate or chip having a hydroxyl radical at its terminal by binding a hydrocarbon having a carboxyl radical to the hydroxyl radical on the surface o the substrate or chip; and

d. immobilizing and amplifying DNA on the surface of the substrate or chip having a carboxyl radical at its terminal.

27. (New) A method for immobilizing and amplifying DNA onto the surface of a substrate or chip comprising the following steps:

a. chemically modifying the substrate or chip by binding a chloride radical to the surface of the substrate or chip;

b. chemically modifying the substrate or chip having a chloride radical at its terminal by replacing the chloride radical with an amino radical on the surface of the substrate or chip;

c. chemically modifying the substrate or chip having an amino radical at its terminal by binding a hydrocarbon having a carboxyl radical to the amino radical on the surface of the substrate or chip; and

d. immobilizing and amplifying DNA on the surface

of the substrate or chip having a carboxyl radical at its terminal.

28. (New) A method for immobilizing and amplifying DNA onto the surface of a substrate or chip comprising the following steps:

a. oxidizing the surface of the substrate of chip with oxygen plasma;

b. chemically modifying the substrate or chip by binding a chloride radical to the surface of the substrate or chip;

c. chemically modifying the substrate or chip having a chloride radical at its terminal by replacing the chloride radical with an amino radical on the surface of the substrate or chip;

d. chemically modifying the substrate or chip having an amino radical at its terminal by binding a hydrocarbon having a carboxyl radical to the amino radical on the surface of the substrate or chip; and

e. immobilizing and amplifying DNA on the surface of the substrate or chip having a carboxyl radical at its terminal.

29. (New) A method for immobilizing and amplifying DNA onto the surface of a substrate or chip comprising the

following steps:

a. oxidizing the surface of the substrate or chip with oxygen plasma;

b. chemically modifying the substrate or chip by binding a chloride radical to the surface of the substrate or chip;

c. chemically modifying the substrate or chip having a chloride radical at its terminal by replacing the chloride radical with a hydroxyl radical on the surface of the substrate or chip;

d. chemically modifying the substrate or chip having a hydroxyl radical at its terminal by binding a hydrocarbon having a carboxyl radical to the hydroxyl radical on the surface of the substrate or chip; and

e. immobilizing and amplifying DNA on the surface of the substrate or chip having a carboxyl radical at its terminal.

30. (New) A method for immobilizing and amplifying DNA onto the surface of a substrate or chip comprising the following steps:

a. chemically modifying the substrate or chip by binding a chloride radical to the surface of the substrate or chip;

b. chemically modifying the substrate or chip

having a chloride radical at its terminal by replacing the chloride radical with a hydrocarbon having a carboxyl radical on the surface of the substrate or chip; and

c. immobilizing and amplifying DNA on the surface of the substrate or chip having a carboxyl radical at its terminal.

31. (New) The method for immobilizing and amplifying DNA on the surface of a substrate or chip as claimed in claim 26 wherein said hydrocarbon has one or more carboxyl radicals.

32. (New) The method for immobilizing and amplifying DNA on the surface of a substrate or chip as claimed in claim 27 wherein the hydrocarbon has one or more carboxyl radicals.

33. (New) The method for immobilizing and amplifying DNA on the surface of a substrate or chip as claimed in claim 28 wherein the hydrocarbon has one or more carboxyl radicals.

34. (New) The method for immobilizing and amplifying DNA on the surface or a substrate or chip as claimed in claim 29 wherein the hydrocarbon has one or more

carboxyl radicals.

35. (New) The method for immobilizing and amplifying DNA on the surface of a substrate or chip as claimed in claim 30 wherein the hydrocarbon has one or more carboxyl radicals.

36. (New) A method for immobilizing and amplifying DNA on the surface of a substrate or chip comprising the following steps:

a. chemically modifying the substrate or chip by binding chloride radical onto the surface of the substrate or chip;

b. chemically modifying the substrate or chip having chloride radical at its terminal by replacing the chloride radical with a hydroxyl radical on the surface of the substrate or chip;

c. chemically modifying the substrate or chip having a hydroxyl radical at its terminal by binding a silane coupling agent having an epoxy radical or an amino radical to the hydroxyl radical on the surface of the substrate or chip;

d. chemically modifying the substrate or chip having an epoxy radical or an amino radical at its terminal by binding a hydrocarbon having a carboxyl radical to the hydroxyl radical on the surface of the substrate or chip; and

e. immobilizing and amplifying DNA on the surface of the substrate or chip having an epoxy radical or an amino radical at its terminal.

37. (New) A method for immobilizing and amplifying DNA on the surface of a substrate or chip comprising the following steps:

a. chemically modifying the substrate or chip by binding hydroxyl radical onto the surface of the substrate or chip;

b. chemically modifying the substrate or chip having a hydroxyl radical at its terminal by binding a silane coupling agent having an epoxy radical or an amino radical to the hydroxyl radical on the surface of the substrate or chip;

c. chemically modifying the substrate or chip having an epoxy radical or an amino radical at its terminal by binding a hydrocarbon having a carboxyl radical to the hydroxyl radical on the surface of the substrate or chip; and

d. immobilizing and amplifying DNA on the surface of the substrate or chip having an epoxy radical or an amino radical at its terminal.

38. (New) A method for amplifying DNA comprising immobilizing DNA on a substrate having thermal conductivity ratio of at least 0.1W/cm°K, wherein said substrate is

chemically modified and has a polar radical selected from the group consisting of hydroxyl, carboxyl, epoxy, and amino at a terminal thereof, said method comprising:

a. adding to said substrate on which DNA has been immobilized a primer with respect to the target DNA and a PCR reaction solution including four kinds of nucleotides and DNA polymerase;

b. increasing the temperature of the substrate to 95°C for about 1.5 minute to convert the double chain DNA to a single chain;

c. cooling the temperature of the substrate to 45°C for about one minute to connect the single chain DNA to the DNA primer;

d. increasing the temperature of the substrate to 74°CV for about two minutes to extend the DNA chain by heat resistant DNA polymerase; and

e. repeating the cycle.